

## CLAIMS

What is claimed is:

5           1.     A method of preconcentrating trace analytes by:  
                  extracting polar and/or non-polar analytes through a sol-  
                  gel extraction medium.

10           2.     A method according to claim 1 wherein said extracting  
                  step is further redefined as feeding a sample through a sol-gel coated inner  
                  surface of a tube and extracting the analytes from the sample with the sol-gel  
                  coating.

15           3.     A method according to claim 2 wherein said feeding step  
                  is further defined as passing the sample through a capillary tube, the tube  
                  including a sol-gel coated inner surface.

20           4.     A method according to claim 2 wherein said feeding step  
                  is further defined as passing the sample through a sol gel monolithic bed.

25           5.     A method according to claim 1 wherein the organic  
                  component of the sol-gel is selected from the group including sol-gel-active  
                  forms and/or derivatives of poly(ethylene glycol),  
                  poly(methylphenylsiloxane), poly(dimethyldiphenylsiloxane),  
                  poly(dimethylsiloxane), poly(methylcyanopropylsiloxane), octadecylsilane,  
                  octylsilane, crown ethers, cyclodextrins, calixarenes, dendrimers,  
                  poly(styrene), poly(styrene-divinylbenzene), poly(acrylate), molecularly  
                  imprinted polymers, etc.

30           6.     A method according to claim 1 further including the step  
                  of thermally desorbing the analytes from the sol-gel extraction medium.

7. A method according to claim 1 further including the step of desorbing the analytes from the sol-gel extraction medium.

8. A method according to claim 6 further including the step 5 of applying the extracted analytes to a GC capillary column.

9. A method according to claim 7 further including the step of applying the extracted analytes to a liquid phase separation technique.

10 10. A method according to claim 1 further including the steps of preconditioning the sol-gel prior to said extracting step.

11. A method according to claim 8 wherein said 15 preconditioning step is further defined as simultaneously heating and purging an inert gas over the sol-gel.

12. A microextraction method including the steps of 20 microextraction polar and non-polar analytes in a sol-gel extraction medium; desorbing the analytes from the sol-gel and analyzing the extracted, desorbed analytes.